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APPLICATION NO	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO	CONFIRMATION NO
10 026,125	12 20 2001	Ming-Hung Chou	MXIC 1517-1	4963

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EXAMINER

PERT, EVAN T

ART UNIT PAPER NUMBER

2829

DATE MAILED: 07 30 2003

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

10/026,125

Examiner

Evan Pert

Applicant(s)

CHOU ET AL.

Art Unit

2829

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☐ Responsive to communication(s) filed on 20 December 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☐ Claim(s) 1-23 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☐ Claim(s) 14 and 18-23 is/are rejected.
- 7) ☐ Claim(s) 15-17 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on 20 December 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_ 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### *Specification*

1. The disclosure is objected to because of the informality at p. 4, line 14 wherein "bake 311" should read --bake 312-- (to agree with Fig. 3). Appropriate correction is required.

### ***Claim Rejections - 35 USC § 103***

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 14 and 18-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Furusho et al. (U.S. 5,581,510) in view of Mori et al. (1990 IEEE article).

#### Claim 14

Regarding claim 14, Furusho et al. disclose a method of relieving charge accumulations (i.e. "erasing") from non-volatile memory structures on dies on a wafer, including applying an electrical erase signal to the non-volatile memory structures on the dies (i.e. "first test" of claims 8 and 9) prior to subdividing the wafer into the dies (i.e. "second test" of claim 9 occurs after the wafer is divided).

Furusho et al. is silent about well known "ONO" and the advantages of including "ONO" in "non-volatile memory" structures. Mori et al. Teach that "ONO" is desirable in non-volatile memory structures due to "its lower defect density and lower leakage current" [Introduction].

It would have been obvious to one of ordinary skill in the art at the time of the claimed invention to submit a wafer with ONO memory structures to the testing method of Furusho et al. The testing method of Furusho et al. is applicable to non-volatile memory in general and, as taught by Mori et al., "ONO" offers an improvement in non-volatile memory structure known in 1990. One of ordinary skill in the art would have been motivated to use ONO for non-volatile memory because of its advantages and would be motivated to apply the test method disclosed by Furusho et al. because it avoids a "waste of test time" [col. 7, line 67].

#### Claims 18-23

Regarding claims 18-23, applicant admits that "the patent literature is very rich in examples of erasure strategies" [0013], and then describes the "pre-erase" as the same as known electrical erase strategies, as enumerated in dependent claims 18-23.

Yet, it would have been obvious to one of ordinary skill in the art at the time of applicant's invention to utilize any of the known electrical erase strategies enumerated in claims 18-23 as the "first test" in claims 8 and 9 of Furusho et al.. One of ordinary skill in the art would have been motivated to "erase" memory of dies on the wafer with an electrical signal at the suggestion of Furusho et al.. One would have been motivated to use a *known* electrical erase method to perform the required "erasing" of the "first test," in order to avoid experimentation of new ways to "erase" with an electrical signal.

#### ***Allowable Subject Matter***

3. Claims 1-13 are allowed.

4. Claims 15-17 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

5. The following is a statement of reasons for the indication of allowable subject matter: The prior art does not disclose applicant's method for relieving charge from non-volatile memory structures (of a plurality of die of an undivided wafer) wherein an electrical erase signal is applied the non-volatile memory structures (of the die of the undivided wafer) and wherein *the wafer is baked under conditions sufficient to diffuse charges resulting from the erase signal*.

#### **Conclusion**

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Evan Pert whose telephone number is 703-306-5689. The examiner can normally be reached on M-F (7:30AM-3:30 PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kamand Cuneo can be reached on 703-308-1233. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 308-0956.

ETP  
July 17, 2003

  
**EVAN PERT**